

Heading: 10 numbers in almost sorted order (a few out of order)

Original: [1, 2, 3, 5, 4, 6, 7, 8, 10, 9]

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Comparisons: 45

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Comparisons: 34

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Comparisons: 19

Heading: 10 numbers in random order

Original: [42, 3, 17, 28, 6, 50, 9, 1, 34, 12]

Bubble Sort: [1, 3, 6, 9, 12, 17, 28, 34, 42, 50]

Comparisons: 45

Quick Sort: [1, 3, 6, 9, 12, 17, 28, 34, 42, 50]

Comparisons: 22

Merge Sort: [1, 3, 6, 9, 12, 17, 28, 34, 42, 50]

Comparisons: 24

Heading: 10 numbers in reverse order (a few out of order)

## **File - Sorts**

Original: [10, 9, 8, 6, 7, 5, 4, 3, 1, 2]

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Comparisons: 45

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Comparisons: 30

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]

Comparisons: 15

Heading: 30 numbers in almost sorted order (a few out of order)

Original: [1, 2, 3, 4, 5, 6, 7, 9, 8, 10, 11, 12, 13, 14, 15, 16, 17, 19, 18, 20, 21, 22, 23, 24, 25, 26, 27, 29, 28, 30]

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 435

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 384

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 78

Heading: 30 numbers in random order

Original: [14, 3, 27, 1, 9, 22, 17, 6, 10, 30, 11, 19, 25, 2, 26, 7, 21, 13, 20, 8, 15, 28, 5, 12, 24, 16, 23, 4, 29, 18]

## **File - Sorts**

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 435

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 107

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 119

Heading: 30 numbers in reverse order (a few out of order)

Original: [30, 29, 28, 27, 26, 25, 24, 23, 21, 22, 20, 19, 18, 16, 17, 15, 14, 13, 11, 12, 10, 9, 8, 6, 7, 5, 4, 3, 1, 2]

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 435

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 322

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30]

Comparisons: 74

Heading: 50 numbers in almost sorted order (a few out of order)

## **File - Sorts**

Original: [1, 2, 3, 4, 5, 6, 7, 8, 10, 9, 11, 12, 13, 14, 15, 17, 16, 18, 19, 20, 21, 22, 23, 25, 24, 26, 27, 28, 29, 30, 31, 32, 34, 33, 35, 36, 37, 38, 39, 41, 40, 42, 43, 44, 45, 46, 47, 49, 48, 50]

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 1225

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 1061

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 154

Heading: 50 numbers in random order

Original: [23, 11, 45, 3, 20, 17, 38, 5, 26, 9, 29, 14, 48, 19, 1, 36, 34, 8, 6, 40, 28, 27, 24, 13, 43, 46, 21, 2, 47, 33, 7, 4, 12, 10, 30, 31, 49, 32, 25, 22, 15, 44, 18, 35, 42, 37, 39, 50, 16, 41]

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 1225

## **File - Sorts**

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 273

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 225

Heading: 50 numbers in reverse order (or almost reverse)

Original: [50, 49, 48, 46, 47, 45, 44, 43, 42, 41, 40, 39, 38, 37, 35, 36, 34, 33, 32, 30, 31, 29, 28, 27, 26, 25, 24, 23, 22, 20, 21, 19, 18, 17, 16, 14, 15, 13, 12, 11, 10, 9, 8, 6, 7, 5, 4, 3, 1, 2]

Bubble Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 1225

Quick Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 973

Merge Sort: [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50]

Comparisons: 137

Process finished with exit code 0